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S. R. HATHAWAY



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THE DIRECTION OF SEX INTEREST IN CASES OF GENITAL DYSPLASIA*†

By S. R. HATHAWAY

The relationship between masculinity or femininity of interests and physical sexual development is an extremely important one because of its implications with reference to problems of endocrine insufficiency or other etiological possibilities in cases of marked sexual abnormalities whether psychological or physical. Using their Attitude-Interest Analysis Test of the degree of masculinity or femininity, Terman and Miles (3) found that though the passive male homosexuals tested more feminine than any other male group in their series, no gross genital defects were found in 33 of these individuals who submitted to a physical examination. Thus, gross genital developmental anomalies are not a requisite for passive male homosexuality or a strongly feminine test score. They further report among their normal group a negligible relationship between masculinity or femininity and physical measurements such as shoulder and hip width, chest depth and girth of waist. Working with normal males, Gilkinson (2) also found little relation between physical secondary sex characteristics and the Attitude-Interest Analysis Test score.

It is possible to approach this problem from another angle by measuring psychologically the masculinity-femininity of individuals in whom there are obvious physical developmental defects of the genitalia. Clinically, these defects are found in all degrees from minor hypoplasia to pseudohermaphroditism. Clear underdevelopment in the male is most frequently seen as cryptorchidism (failure of the testicles to descend), hypospadias (an incomplete development of the urethra with curvature of the penis), and infantilism with normally formed but infantile sex organs. In addition to these defects, there is a more infrequent type in which genital development is so incomplete or so mixed in structure as to leave doubt from the physical standpoint as to the true sex of

*From the Division of Nervous and Mental Diseases, University of Minnesota Medical School, Minneapolis, Minnesota.

† Recommended for publication by Dr. E. S. Conklin.

the individual. These cases are classed as pseudohermaphroditism. With all these conditions there is a tendency for secondary sex characteristics such as distribution of body hair, development of breasts, etc. to be distinctly abnormal. Many males with hypospadias have been raised as females without suspicion of their true sex until the direction of the sexual interests and drives was discovered. From the physical standpoint, then, these cases can all be considered as sex intergrades. The actual physical structures vary from a point where the sex is not in real doubt to a degree of underdevelopment or mixed development where the sex cannot be determined even by histological means. In addition to these cases in which abnormal embryological development is the chief factor, there are also sex intergrades brought about primarily by abnormal gland function. Noteworthy among these is Froehlich's Syndrome in which the individual develops an adiposity in the hip girdle and usually a feminine appearance with underdevelopment of the sex organs.

In the present paper, the masculinity-femininity score of nine such individuals is presented together with their physical state in order to indicate whether or not there is a marked tendency for the masculinity-femininity score to occupy the in-between position on the male and female distributions which would be indicated from the physical make-up.

A. SUBJECTS

In the hospital records there were available one case of Froehlich's Syndrome, six cases of various types of hypospadias and cryptorchidism and two cases of pseudohermaphroditism. Since these cases were widely scattered throughout the state and elsewhere, it was considered impractical to get them into the clinic for further examination personally, so the hospital record was relied upon for physical history and description. For the masculinity-femininity measure, the Terman and Miles Attitude-Interest Analysis Test was mailed to the subjects together with a letter instructing them to fill out the blank and return it as soon as possible. The letter further explained that we were making a careful investigation into the interests of a group of persons who had been

registered at some time or other at the University Hospital in Minneapolis, and that we wanted to put their ideas and the ideas of others to whom we had written together so as to get some knowledge of what patients think and like. They were especially cautioned to answer the blank unaided and were told that if they wished another blank for others in the family to work on or for discussion, we would be glad to supply it.

The blanks from the nine subjects were returned within a week and appeared to have been filled out according to directions since there were no special evidences of erasures or unusual time spent over the answers. The times for taking the test were indicated in all cases and agreed roughly with the average times given by Terman and Miles. The records were scored on both the masculinity-femininity scale and on the invert weighted scale. The hospital records were examined carefully, both to obtain a description of the physical characteristics of the patient and to discover any notes that might be present regarding unusual behavior or appearance. It should be pointed out that the absence of such notes in most of the cases does not mean that such abnormal behavior or appearance would not have been perceived and recorded. It should be interpreted to mean that nothing of the sort was observed by the examining physician. Thus, it is fair to assume that when no note is found on the point on which examination is usually made, the finding was negative.

B. RESULTS

Table I is the summary of the test findings and diagnoses of the nine cases. The standard scores¹ given are always with refer-

¹ These standard scores are obtained from the means and standard deviations of the various groups as given by Terman and Miles. A conception of the degree to which the test separates the sexes may be gained from the following data for the general adult population:

Mean for males	36	sigma 54
Mean for females	-85	sigma 42

Terman and Miles obtained the "I" (invert) score by weighting normal high school males against passive male homosexuals. The same item weightings were used in each of the nine cases in our series for a determination of the "I" score as tabulated.

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TABLE I

Case	Age	Preferred Sex	Diagnosis	Standard Score M-F	"I" (Invert) Score
C.J.	32	M	Froehlich's Syndrome Gynecomastia	-0.5 Gen. Adult Males	-109
J.W.S.	46	M	Penile Hypospadias Gynecomastia	0.27 Gen. Adult Males	-373
B.S.	15	M	Penile Hypospadias Cryptorchidism	0.81 H.S. Junior Males	-474
W.G.	14	M	Penoscrotal Hypospadias	1.36 8th Grade Males	-425
J.S.	10	M	Penoscrotal Hypospadias Cryptorchidism	0.41 8th Grade Males	-535
N.M.	15	M	Penoscrotal Hypospadias Cryptorchidism	0.30 H.S. Junior Males	-289
L.M.	19	M	Glandular Hypospadias	-0.30 H.S. Junior Males	-555
L.C.	26	M	Masculine Complete Pseudohermaphroditism	-0.5 Gen. Adult Males	-108
E.P.	22	F	Masculine External Pseudohermaphroditism	0.48 Gen. Adult Females	413

Table Summarizing the Nine Cases and Giving the Standard Score on the Terman and Miles M-F (Masculinity-Femininity) Test. The positive values are in the masculine direction for the M-F score and in the feminine direction for the invert score.

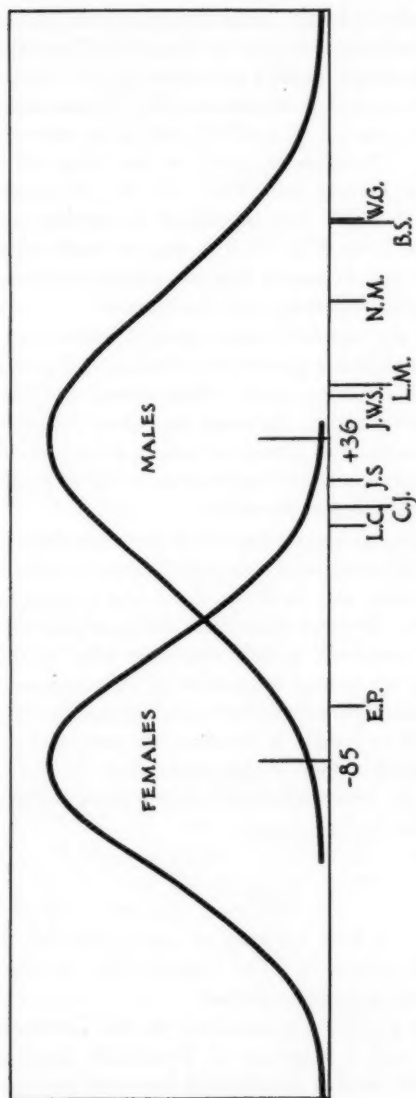


FIGURE 1

Schematic curves of masculinity and femininity of interests constructed from the means and standard deviations of the general adult groups as given by Terman and Miles. The scores of the nine cases are indicated on the base line.

ence to the sex preferred by the subject. Eight of the patients were found to be definitely masculine on the masculinity-femininity scale in accordance with their expressed subjective drives. Furthermore, in none of the eight masculine subjects was the "T" score significant. In the most extreme cases, C.J. and L.C., the score was -109 and -108 respectively. These scores, while on the fringe of the distribution given by Terman and Miles for the 82 passive male homosexuals, are probably not significant since they are more masculine than 96% or 97% of the passive male homosexual group. The ninth case expressed feminine subjective interests and the test score is again consistent with this interest.

In interpreting the standard scores given it should be remembered that the first eight are given with reference to the male mean and the ninth with reference to the female mean, and that in all cases a plus score represents the more masculine direction. Since the ages and scholastic level varied so widely, an attempt is made in each case to use the norm most appropriate to the individual. The norms chosen are indicated in the table.

Figure 1 is a graphic representation of the same data in which two schematic distributions were constructed from the general adult male and female norms, and the scores of the nine subjects indicated along the base line. It seems clear from the data that these cases cannot safely be considered as different from what might be expected in sampling the general population of the corresponding sex and age. While one might expect that pseudohermaphrodites would not be clearly male or female in interests, the two cases presented here do not lend much support to this expectation.

The following are brief, individual summaries of the test results and histories of the nine subjects:

CASE 1

Present status: C.J. is 32 years of age, unmarried, and has had a fifth grade education. The Terman M-F standard score is -0.5 on general adult male norms.

History: The patient was admitted to the University Hospital on 8-27-34, and a diagnosis of Froehlich's Syndrome was made. The testicles were in the scrotum but were only one-fourth

normal size. The penis was about half normal size. The fat and hair distribution were feminine, and the breasts were prominent. On 12-21-37 he was readmitted to the hospital and an ischiorectal abscess was drained. His expressed interests were masculine. There was no further note of importance for the present study.

CASE 2

Present status: J.W.S. is 46 years of age, unmarried, and has had a seventh grade education. The Terman M-F standard score is 0.27 on general adult male norms.

History: This patient was admitted to the University Hospital on 11-21-21 but operation for the correction of a penile hypospadias was not advised. He had previously been operated on for removal of the breasts. On 7-8-31 he was readmitted and an indirect inguinal hernia was repaired. The testes had always been in the scrotum, but the patient was very feminine in appearance. He had a typically feminine hair distribution and had had large breasts. His sexual drive, nevertheless, was typically masculine and he had carried out sexual intercourse.

CASE 3

Present status: B.S. is 15 years old and in the ninth grade. The Terman M-F standard score is 0.81 on high school junior norms.

History: This patient was admitted to the University Hospital on 7-17-36 for first stage repair of a penile hypospadias. He had previously been given Antuitrin S for bilateral undescended testicles. One testicle was still in the inguinal canal. He was again admitted 6-16-37 for urethroplasty and finally on 8-8-38 for orchiopexy on the still undescended testicle. There were no notes referring to abnormal appearance or behavior. The sex interests were apparently typically masculine.

CASE 4

Present status: W.G. is 14 years old and in the seventh grade. The Terman M-F standard score is 1.36 on eighth grade male norms.

History: This patient was admitted to the University Hos-

pital on 8-26-36 for correction of the penile curvature in a penoscrotal hypospadias. This operation had been previously attempted elsewhere, but was not satisfactory. On 8-23-38 he was again admitted for urethroplasty which gave a satisfactory result. One testicle was incompletely descended. The clinical notes make no mention of feminine appearance or actions, and he was apparently typically masculine.

CASE 5

Present status: J.S. is 10 years of age and in the fourth grade. The Terman M-F standard score is -0.41 on eighth grade male norms.

History: This patient was admitted to the University Hospital on 8-24-33 for freeing of the penis from ventral curvature in a penoscrotal hypospadias. This operation was completed on 1-16-34. On 8-9-37 Antuitrin S was begun as treatment for a bilateral cryptorchidism, and on 9-30-37 the right testis was well descended and the left was high in the scrotum. On 7-28-38 he was again admitted for urethroplasty. There are no notes regarding any unusual behavior or appearance. He was apparently a typical boy.

CASE 6

Present status: N.M. (brother of L.M.) is 15 years old and a high school Freshman. The Terman M-F standard score is 0.30 on high school junior male norms.

History: This patient was admitted to the University Hospital on 8-1-35 for penile straightening in a penoscrotal hypospadias. He had received previous injections of Antuitrin S for bilateral cryptorchidism. At the time of admission one testicle was in the scrotum. He was readmitted 6-16-36 for urethral repair and on 7-19-37 for orchiopexy on the undescended testicle. The clinical history contains no reference to any further feminine traits or appearance, and he was apparently a normal male in interests.

CASE 7

Present status: L.M. (brother of N.M.) is 19 years old, unmarried, and has had a ninth grade education. The Terman M-F

standard score is -0.30 on high school junior male norms.

History: This patient was admitted to the University Hospital on 11-27-34 for penile straightening and on 8-1-35 for urethroplasty, completing the repair of a glandular hypospadias. The testicles were in the scrotum. The clinical notes do not mention any feminine appearance or behavior, and he was male in his expressed interests.

CASE 8

Present status: L.C. is 26 years of age, unmarried, and has had an eleventh grade education. The Terman M-F standard score is -0.5 on general adult male norms and 2.25 on general adult female norms.

History: The patient was admitted to the University Hospital on 4-12-33 at which time an abdominal exploration disclosed a small bicornate uterus and two gonads in the position of ovaries. These were biopsied and found to contain testicular tissue. A diagnosis of masculine complete pseudohermaphroditism was made. The penis was partially released, and on 5-17-34 urethroplasty was performed. The patient had some enlargement of the breasts and a feminine hair distribution. His voice was high pitched and his skin was soft in texture. This case has been reported clinically by Creevy (1).

CASE 9

Present status: E.P. is 22 years of age, unmarried, and a high school graduate. The Terman M-F standard score is 0.48 on adult female norms and -1.88 on adult male norms.

History: This patient was admitted to the University Hospital on 9-23-30 for repair of an inguinal hernia. When the sac was opened, a body was revealed which appeared to be a testicle. It was biopsied and left in the abdominal cavity. No other gonads were found and exploration disclosed no uterus or tubes. Cystoscopy and vaginal examinations later showed a normal female urethra and vagina but no trace of a cervix. With the exception of the absence of the internal female sex organs, the patient was typically feminine in appearance and attitude. Histologically the portion

of gonad removed appeared to be undifferentiated testicular tissue. A diagnosis of masculine external pseudohermaphroditism was made. It is noted at a later examination that the patient appeared to have a nervous make-up. The expressed sex interests were feminine. This patient was also reported by Creevy (1).

SUMMARY

Although nine cases do not establish the point with finality, the results strongly suggest that there is a relative independence between the genital development and the mental make-up as determined by the Terman and Miles masculinity-femininity interest scale. These findings are in accord with the data obtained by Terman and Miles who found a similar lack of correspondence. That is, their male homosexual subjects were characterized by normally developed sex organs but feminine interests and attitudes. They also support the findings of both Terman and Miles and Gilkinson in showing little relation between physical secondary sex characteristics and measured masculinity or femininity of interests among normals. The data presented further suggest an important clinical application of the masculinity-femininity test in the examination of and as a guide to surgical procedures in cases of pseudohermaphroditism in which a decision must be made as to the sex of the individual.

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